ABSTRACT

Surface-mount, solder-down sockets are described which permit electronic components such as semiconductor packages to be releasably mounted to a circuit board. Generally, the socket includes resilient contact structures extending from a top surface of a support substrate, and solder-ball (or other suitable) contact structures disposed on a bottom surface of the support substrate. Composite interconnection elements are described for use as the resilient contact structures disposed atop the support substrate. In use, the support substrate is soldered down onto the circuit board, the contact structures on the bottom surface of the support substrate contacting corresponding contact areas on the circuit board. In any suitable manner, selected ones of the resilient contact structures atop the support substrate are connected, via the support substrate, to corresponding ones of the contact structures on the bottom surface of the support substrate. For example, the support substrate is suitably a printed circuit board having plated through holes. In an embodiment intended to receive a LGA-type semiconductor package, pressure contact is made between the resilient contact structures and external connection points of the semiconductor package with a contact force which is generally normal to the top surface of the support substrate. In an embodiment intended to receive a BGA-type semiconductor package, pressure contact is made between the resilient contact structures and external connection points of the semiconductor package with a contact force which is generally parallel to the top surface of the support substrate. Variations of these two basic embodiments are described, including limiting wiping motion of the resilient contact structures across a terminal of an electronic component, and moving the resilient contact structures rather than the electronic component to effect pressure connections therebetween.